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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,154	07/21/2005	Hiroyuki Sakamoto	27604-00001-US1	6527

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EXAMINER	
MCNALLY, DANIEL	

ART UNIT	PAPER NUMBER
1791	

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06/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,154	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	DANIEL MCNALLY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9 and 12-21* is/are pending in the application.

4a) Of the above claim(s) *13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9, 12,and 14-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 14, 15, 17 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14, 15, 17 and 20 depend from cancelled claim 2. Claims 14, 15, 17 and 20 are vague and indefinite for depending from a cancelled claim. Claims 14, 15, 17 and 20 cannot be simply amended to depend from the independent claim 1, because claims 3, 4, 5, and 6 respectively contain the same limitations as claims 14, 15, 17 and such an amendment would result in duplicate claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-9, 12, and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. [US4781969] (of record, previously cited) in view of Suzuki et al. [US4844784] (newly cited) and Sakamoto et al. [US6262146] (of record, previously cited).

Kobayashi discloses a flexible printed circuit board. The flexible printed circuit board is formed by adhesively bonding conductive layers (6,6) with adhesive layers (3,3) to a dielectric layer (2) (column 2, lines 24-33). The conductive layers comprise a metal material. The dielectric layer is a functional material. Kobayashi does not disclose the adhesive as a cationic electrodepositable adhesive that is formed on the conductive metal layer by electrodeposition.

Suzuki discloses a method of bonding flexible circuit substrates (column 1, line 61-column 2, line 34; column 3, line 10-column 4, line 39). The method comprises forming an adhesive layer on electroconductive surfaces using electrodeposition, drying the adhesive layer without curing the adhesive, Suzuki discloses the drying temperature can be about 80°C for 5 minutes, the substrates to be bonded are brought together, and a bond is formed under heat and pressure. Suzuki discloses the electrodeposition method allows for a formation of a uniform coating only on the desired circuit parts.

Sakamoto discloses a method of electrodepositing a cationic resin composition onto a conductive metal substrate. Sakamoto discloses using cationic electrodepositing in order to better control the thickness of the cationic resin and because of the excellent throwing power and improved impact resistance. Sakamoto discloses the cationic adhesive composition is water based and baked to cure. Because the adhesive is water based, there are no volatile components in the solvent to be generated. Furthermore, the electrodepositing method of Suzuki comprises a drying step that removes any water and volatiles using the heat for drying.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Kobayashi by electrodepositing a cationic resin onto the surface of the conductive metal layer as taught by Suzuki and Sakamoto in order to form a uniform coating with a controlled thickness, that is also controlled by only being formed on the desired bonding areas.

With regard to claim 3 and 14, Sakamoto discloses the composition of the cationic adhesive comprises an aliphatic hydrocarbon group which contains unsaturated double bonds within its chain.

With regard to claims 4, 15 and 16, Sakamoto discloses the composition of the cationic adhesive allows the formation of chemical species activated by an electrode reaction caused by a voltage application during the electrodeposition.

With regard to claims 5, 17, 18 and 19, Sakamoto discloses the composition of the cationic adhesive comprises sulfonium groups and propargyl groups.

With regard to claims 6 and 20, Sakamoto discloses the composition has a sulfonium group content of 5 to 400 millimoles, a propargyl content of 10 to 315 millimoles and a total content not more than 500 millimoles per 100g of solid.

With regard to claims 7, Sakamoto discloses the composition has a sulfonium group content of 5-250 millimoles, a propargyl content of 20-295 millimoles and a total content not more than 400 millimoles per 100g of solid.

With regard to claim 8, Sakamoto and Suzuki discloses the composition has an epoxy resin skeleton.

With regard to claim 9, Sakamoto discloses the epoxy resin comprises novolak phenol epoxy resin or novolak cresol epoxy resin in an average molecular weight of 500 to 20,000.

With regard to claim 12, Kobayashi discloses the dielectric material as an organic material.

With regard to claim 21, Suzuki discloses drying the adhesive at 80°C for 5 minutes.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 3-9, 12, and 14-21 have been considered but are moot in view of the new ground(s) of rejection. The independent claim 1 was amended to include a heating for drying step that does not cure the adhesive. Newly cited Suzuki discloses this process step for an electodeposition method. Suzuki discloses a heating for drying step that allows for sufficient removal of volatile components such as a solvent remaining in the adhesive layer before a bonding step.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MCNALLY whose telephone number is (571)272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel McNally/
Examiner, Art Unit 1791

/John L. Goff/
Primary Examiner, Art Unit 1791

/DPM/
June 2, 2008